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ABSTRACT

This report presents a formative evaluation of the East Environmental Science Magnet High School in the Kansas City School District, Missouri. It presents data collected throughout the program's first year, including student demographics; program implementation information; achievement data; and perceptions of staff, parents, and students. An evaluation of demographic data show that East failed to approach the 60/40 minority/non-minority ratio guidelines by the required 2 percent in grades 9, 10, and 12. It is reported that site and classroom visits to East together with documentation of student participation in field trips, clubs/organizations, and recycling projects reveal evidence of implementation of the magnet theme of environmental science. A summary of the achievement test scores appear in table form along with clarifying information. Teacher and student perceptions of the program were mixed while parent response to a phone survey was positive. Parent, teacher, and student responses are presented in tables 11-13. A final section draws conclusions about the program and makes recommendations for program improvement. (MCO)

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Formative Evaluation of the East Environmental Sciences Magnet High School

1990-1991

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August 1991

Evaluation Office
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Executive Summary

The East High School for Environmental Science began operation in fall 1990. This end-of-year formative report presents data collected throughout the program's first year, including student demographics, program implementation information, achievement data, and perceptions of staff, parents, and students. A final section draws conclusions about the program and makes recommendations for program improvement. It is important to emphasize that this is a formative report.

Demographic data summarized as of September 1990 show that East failed to approach the 60/40 minority/non-minority ratio guideline by their required two percent in grades nine, ten, and twelve. In the eleventh grade the percent minority moved toward the guideline ratio by two percent, from 75% to 73%. Site visits to East revealed visible evidence of the implementation of the magnet theme including such things as posters, plants, aquariums, models, student work (from all subject areas), animals (live and preserved) and terrariums. The large amount of construction going on throughout the building during the school year with classes relocated regularly as sites of construction and asbestos removal changed, probably had a depressing effect on the quality and quantity of displays. East students' participation in numerous theme related field trips, clubs/organizations, and recycling projects provided evidence of theme implementation. Classroom observations at all grade levels revealed that a majority of teachers are attempting to infuse the theme into their content area and are incorporating critical thinking/problem solving skills into their coursework across the curriculum.

A summary of the Tests of Achievement and Proficiency (TAP) scores shows that East students scored below the national norm (the 50th percentile) at all grade levels in reading, math, social studies, and science. Scores rose by at least two percentile points across all subject areas in ninth and tenth grades and in science at the eleventh grade level. The greatest gains across grade levels were made in math and science, with average raises of six and five percentile points respectively. Across subjects, ninth and tenth graders made the greatest gains averaging increases of ten and eight percentile points respectively. On the Missouri Mastery and Achievement Tests (MMAT), East scores are comparable to those of the district across all subject areas at tenth grade. Compared to the state East is weak across all subject areas at tenth grade.

The teacher questionnaire revealed a wide variation in levels of satisfaction. Over 90% of the teachers said they were able to get the materials/supplies necessary to teach the environmental science theme, were engaged in more environmentally sound activities in their own personal lives as a result of their experience with the theme, had received the support from the principal necessary to successfully implement the theme, and were familiar with the goals and objectives of the East planning outline. Seventy-five percent of the teachers believe that discipline problems to at least some degree hinder attempts to implement the theme.

A large majority of parents responded positively to most of the questions on a parent phone survey during spring 1991. Thirty-eight percent said that liking the theme played a major role in their choice of high school, while 61% said their child's attendance at East last year was a major factor in the decision to attend this year. A large majority of parents believed that their child was acting in a more environmentally responsible way and was making the family more environmentally aware (90% and 89% respectively). One-hundred percent stated they would recommend the school to other parents. There is a high level of reported parent involvement with 97% saying that they attended the last parent/teacher conference and 100% stating that they attended SAC meetings and worked on homework with their child at least occasionally.

Student surveys yielded a very mixed response. On the positive side, over 2/3 of the students stated that they learned a lot about the environment and taking care of it, tried to litter less than in the past because of what they had learned in school, studied the impact of industry on the environment and current environmental issues regularly, learned problem solving and decision making skills that they have been able to apply outside school, and liked going to their school. On the negative side, at least 2/3 of the students responding stated that they did not have an opportunity this year to design or conduct any scientific experiments, analyze any data statistically, build an ecosystem, or study a macrosystem on a field trip (all of which are part of the East plan). In addition 2/3 or more of the students said they did not participate in school recycling projects, science fairs or contests, school landscaping projects, or any other voluntary activities to improve the environment. Nearly 3/4 of the students stated they did not keep a detailed science notebook or write a personal philosophy about the preservation of the earth, both also called for in the East plan. Three-fourths of the students do not believe students are well-behaved in classes, with 48% saying that the behavior problems interfered with theme implementation this year.

There is evidence that the East Environmental Science High School has made progress in spite of often difficult circumstances and problems primarily associated with the vast amount of construction in progress throughout the entire school year . There are many signs of theme implementation with visible evidence in displays, theme-oriented field trips, several organizations in place for interested students, and an excellent school newspaper reporting theme related and organizational activities, opportunities, and successes. Specific recommendations based on the data gathered are contained at the end of this report.

FORMATIVE EVALUATION
OF THE
EAST ENVIRONMENTAL SCIENCE
MAGNET HIGH SCHOOL

1990-91

Introduction

The East High School for Environmental Science began full operation in fall 1990. This end-of-year formative report presents data collected through the program's first year of full operation, including student demographics, program implementation information, achievement data, and perceptions of staff, parents, and students. A final section draws conclusions about the program and makes recommendations for program improvement. It is important to emphasize that this is a formative report. According to the *Long Range Magnet Plan* (Hale & Levine, 1986), "a school's effectiveness should **not** be determined during its first year of operation. ... during its early years [evaluation] should be designed with the intent of improving, modifying, and revising program implementation" (pp. 46-47). The *Long Range Magnet Plan* further states that there should be two years of formative evaluation before a summative evaluation is done in year three.

Program Description

The East High School For Environmental Science serves students in grades nine through twelve. The mission of the East program is encapsulated in the following statement taken from the *East High School For Environmental Science Planning Outline* (East High School Task Force, 1990):

> The mission of East High School is to develop students who will become adult contributors to the local, national, and global community and who will also become actively involved in the issues of their times.

The East curriculum is designed to address the following magnet theme goals:

1. Environmental science education will heighten the level of student awareness, appreciation, and understanding of environmental cycles that perpetually maintain the intrinsic balance of nature.

   Development of a well-equipped Learning Resource Center for use by both faculty/staff and students and the publication of an environmental science

column in the student newspaper are two important objectives cited to achieve this goal.

2. Environmental Science activities will help students acquire positive attitudes toward natural surroundings, understand their responsibility to the environment, and see the earth as a life support system.

   The study of ecosystems in a variety of laboratory situations and field trips are cited as objectives to be met in reaching this goal. In addition a school environment providing visual theme-related information and displays and multiple opportunities for participation in theme-centered organizations and activities.

3. Environmental Science education will help students expand their knowledge as to how people are affected by the environment and how the environment is affected by people.

   Globally-oriented study of environmental issues, use of community and government resources, and appropriate environmentally-centered field trips for all students are recommended in the plan.

4. Environmental Science Education will help students develop and apply the skills needed to explore and investigate environmental issues.

   Student development of critical thinking and problem solving skills, laboratory and communication skills are cited as objectives under this goal. Also proposed are infusion of the theme across the curriculum, use of community mentors, use of computers for both basic skills and theme-related study, and student participation in theme-oriented large scale projects (i.e. internships, science fair projects, forestry or soil conservation projects).

5. East High School will prepare students to make intelligent choices for future academic experiences, career preparation, and productive citizenship.

   In addition to improving attendance and standardized test scores, the plan calls for students to write personal philosophies about the environment's preservation and to work with their counselors to develop a plan of study and activities tailored to their own goals. The plan also calls for information about theme-centered careers to be infused across the curriculum and into the field trips.

Evaluation Design

The following questions were used to focus information collected for this report:

1. What is the enrollment breakdown by grade level and minority/non-minority status? How does this compare to the previous school year?
2. To what degree is the program being implemented as described in the East planning outline?
3. What are the perceptions of school staff, parents, and students regarding the current school year?
4. What are the achievement scores as measured by standardized tests such as the TAP, MMAT, and Degrees of Reading Power Test (DRP)? How do these scores compare with the objectives set in the East planning outline?

While this report concentrates on the 1990-91 school year, some data from 1989-90 are included to help place the current year's data in perspective. Enrollment data for 1989-90 and 1990-91 presented in this report were obtained from the district's Research Office. Implementation data were obtained from observations made during site visits to East High School, teacher questionnaires, interviews with school staff, and documents provided by school staff. Perceptions were measured using questionnaires administered in the spring to the administration, support staff, teachers, and students. Parent perceptions were obtained by telephone survey. Achievement scores were obtained through the district's Testing Office or computer base.

Results and Discussion

Demographics

Table 1 reports for, each grade level, the environmental science program capacity as defined by the Admissions Office, the actual enrollment as reported by the Research Office, the difference between the two figures, and the percent of the capacity that was filled. Most grade levels were not filled to capacity, with tenth, eleventh, and twelfth grades filled to 50%, 76%, and 45% respectively. Ninth grade, with a program capacity of 89 and an enrollment of 160 was filled to 180% of capacity. East enrollment data appears in more detail for 1989-1990 and 1990-91 in Table 2. Demographic data, summarized as of September 1990, show that East failed to approach the guideline 60/40 minority/non-minority ratio by at least two percent in grades nine, ten, and twelve. In fact, the proportion of minority enrollment increased at those

Table 1

Percent of Enrollment Capacity Filled for East Environmental Science Program

Grade	Program Capacity [1]	Actual Enrollment [2]	Difference (AE-PC)	%of Capacity (AE/PCX100)
9	89	160	+ 71	180%
10	325	163	-162	50%
11	208	158	-50	76%
12	197	89	-108	45%
Total	819	570	-249	70%

[1] Program capacity utilized by the Admissions Office when placing students in magnet programs.

[2] From September 26, 1990 Student Membership Report (Research Office, 1990).

Table 2
East High School Minority and Non-Minority
Enrollment for School Years 1989-1990, and 1990-1991

	1989-1990				1990-1991			
	Minority		Non-Minority		Minority		Non-Minority	
Grade	%	N	%	N	%	N	%	N
9	78%	255	22%	74	83%	132	18%	28
10	75%	164	25%	55	84%	137	16%	26
11	75%	149	26%	51	73%	115	27%	43
12	75%	97	25%	32	81%	72	19%	17
Total	76%	665	24%	212	80%	456	20%	114
Grand Total		877				570		

Note: Enrollment data provided by the Kansas City, Missouri School District Research Office.

grade levels by 5%, 9%, and 6% respectively. In the eleventh grade the percent minority went from 75% to 73%, just meeting the guideline.

Implementation

Materials and Supplies. While 90% of the teachers reported being able to get the materials and supplies necessary to teach the theme courses, only 79% reported being able to get supplies necessary to teach the core curriculum. Teachers did not offer comments to explain the 21% negative response.

Staff Development/Inservice. Table 3 presents teacher responses to questions concerning staff development/inservice. Seventy-one percent of teachers responding stated that they were able to apply information from theme-related inservice in their classrooms often or very frequently (item 1). Asked about their satisfaction with staff development/inservice, 59% of the teachers were satisfied or very satisfied with theme-related inservice (item 2) while 38% of the teachers stated they were satisfied or very satisfied with sessions regarding the district's core curriculum (non-theme related courses) (item 3). Item four defines areas over which teachers said they wanted more inservice. These included sessions designed to increase knowledge about careers related to environmental science (41%), increase knowledge about use/application of computers (40%), learn about more effective discipline (31%), help with theme infusion (31%), increase effectiveness of instruction (29%), and increase knowledge of environmental science (18%).

Table 3
East Teacher Questionnaire Responses to Staff Development/Inservice Items
Spring 1991

Item		Response Alternatives	1990-91 (N = 45)
1.	How often were you able to apply in your classroom information from inservice related to theme implementation and infusion	Very Frequently	19%
		Often	52%
		Seldom	29%
		Never	0%
2.	How satisfied have you been with the staff development and inservice sessions regarding the environmental science theme?	Very Satisfied	2%
		Satisfied	57%
		Dissatisfied	36%
		Very Dissatisfied	5%
3.	How satisfied have you been with the staff development and inservice sessions regarding the district's core curriculum?	Very Satisfied	5%
		Satisfied	33%
		Dissatisfied	58%
		Very Dissatisfied	5%
4.	Do want additional inservice to:		
	a. help with ES theme infusion	Yes	31%
	b. increase knowledge of environmental science	Yes	18%
	c. increase effectiveness of instruction	Yes	29%
	d. learn about more effective discipline	Yes	31%
	e. increase knowledge about use/application of computers	Yes	40%
	f. increase knowledge about careers related to ES	Yes	41%

Visible evidence of magnet theme. During fall and spring, observations were conducted to document visible evidence of the magnet theme. Classrooms from all disciplines were selected and an attempt was made to select those which had not recently been moved because of construction. Throughout the year, classes were moved regularly as sites of construction and asbestos removal changed. This presumably had a depressing effect on both the quantity and quality of visible evidence. Even so, there was an attempt made by the large majority of teachers to create a theme centered environment. In the fall, 13 classrooms were observed to have 313 theme-related displays, making an average of 24 per room. In the spring, 12 classrooms were found to have 701 displays for an average of 58 per room. Averages do not give a totally representative picture because the science classrooms, as might be expected, contained a much larger proportion of theme-related displays. Displays were found in 100% of the rooms visited with a range of four to 137 displays in any single room. Making up the bulk of the displays were posters, models, equipment, aquariums, animals (both live and preserved), student work, plants, and photographs. Displays in both hallways and individual

classrooms most frequently dealt with wildlife, social studies, ocean life, and trees and plants in that order. The classroom teachers efforts were greatly complimented by the administration and instructional support staff's contributions. They established and maintained several large ecosystems, terrariums and aquariums in addition to displays and materials for teacher and student use in botany labs, greenhouses, and the animal lab. More details about some of these displays are given in the next section on facilities/grounds use. The proportion of specifically "environmental" science displays (i.e. recycling, ecology, etc.) in relation to the "theme-related" science and social studies displays was relatively small, with less than five percent specifically environmental in content. Examples of displays in this category would be those specifically referencing ecology, displays on recycling, etc. Distinguishing between infusion/inclusion of "science" or "social studies" topics in general and "specifically environmental science" topics is difficult in practice. For most purposes in this report, a broad view of the disciplines is used. At this point in reporting visible evidence of the theme, the subtle matter of differentiation is brought up because the existing proportion may not make it immediately obvious to the casual observer or visitor entering the school that the theme is environmental science versus natural science, life science, or a similar theme. The entryways into the school are particularly void of displays, environmental or otherwise. The parking arrangement at East encourages people to use doors at the side of the building and the entrance there lacks clear signs of welcome, direction, or theme information.

East facilities/grounds use. Observations and discussions with school staff revealed that the greenhouse facilities and the animal lab were used by all grade levels on a primarily voluntary schedule and that plans are currently being formulated to increase and regulate more consistent use of those facilities by all grade levels for the next year. As of May, 1991 the small animal lab had 11 hamsters, four gerbils, one mouse, five rats, one rabbit, and 37 baby chicks. There are also a relatively large number of aquariums in the building the most notable being a 200 gallon tank of native Missouri fish in the hall near the auditorium. In addition, throughout the building there are eight 135 gallon tanks and thirty 30 gallon tanks. Plants too are in evidence with approximately 40 tropical plants scattered throughout the building. To keep the plants healthy with the construction's dirty air and forced regular movement from room to room, plans called for alternate sets of the plants to be split at any one time half into the greenhouse for careful attention and half throughout the building for student exposure. The sets were to be switched at intervals when deemed necessary for maintaining healthy speci-

mens. Teachers were asked about their satisfaction with and use of the East grounds and facilities. Their responses to these questionnaire items are presented in Table 4. Only 21% of responding teachers stated that they were satisfied with the East buildings, grounds, etc. (item 1). When asked to what degree their students used the school grounds for environmental study 25% said to a good or great degree, 52 % to some degree, and 23% said not at all (item 2). The program administrator pointed out that use of the grounds was seriously impeded by the construction process with heavy equipment, materials, and muddy areas in several areas around the outside of the school building. Seventy-nine percent of the teachers believe the Learning Resource Center (LRC) is well equipped with newspapers, periodicals, books, and other materials for study of environmental issues by students and/or faculty (item 3). Asked how often they used the LRC to prepare class materials or become more informed about the theme, 32% stated often or very frequently, 36% said some, 26% said seldom, and 6% said not at all(item 4). Thirty-nine percent stated that they had their students use the LRC for study of environmental science to a good or great degree , 45% said to some degree, and 16% said not at all (item 5). Asked to what degree their students used the greenhouse/botany lab, only 10% said to a good or great degree, 26% said to some degree and 64% said not at all (item 6). In November of 1990, teachers were asked to respond to the statement "I am comfortable with my knowledge of computers and their use in the classroom." Forty-nine percent agreed or strongly agreed with that statement, while 51% disagreed or strongly disagreed (item 7). Teachers were asked in spring about their students' use of computers for various purposes. Forty-five percent stated their students used computers to reinforce basic skills to a good or great degree, 24% to some degree, and 31% not at all (item 8). Forty-eight percent said they had their students use computers to enhance instruction in their own subject area to a good or great degree, 26% said to some degree, and 26% said not at all (item 9). Asked to what degree they had their students use computers to simulate activities in environmental science 17% said to a good degree, 24% to some degree, and 59% not at all (item 10). Sixteen percent stated they had their students use computers to investigate environmental topics to a good or great degree, 23% said to some degree, and 60% said not at all (item 11).

Field trips. Another indicator of magnet theme implementation is the number and type of field trips. A review of field trips by East students, presented in Table 5, reveals that field trips were taken to 25 locations during 1990-1991. A perusal of the destination list in the table (some visited by more than one group for a total of 44 field trips) shows that the great

Table 4

East Teacher Questionnaire Responses to Facility/Grounds Use Items Spring 1991

Item		Response Alternatives	1990-91 (N = 45)
1.	How satisfied have you been with the adequacy of the East facilities (i.e. the buildings, grounds, etc.) in facilitating theme implementation?	Very Satisfied	0%
		Satisfied	21%
		Dissatisfied	52%
		Very Dissatisfied	27%
2.	To what degree during the year do your students use the school grounds for environmental study?	To a Great Degree	5%
		To a Good Degree	20%
		To Some Degree	52%
		Not At All	23%
3.	Do you believe the Learning Resource Center is well equipped with newspapers, periodicals, books, and other materials for study of environmental issues by students and/or faculty?	Yes	79%
		No	21%
4.	How often do you use the LRC to prepare class materials, become more informed about the theme, etc.?	Very frequently	4%
		Often	28%
		Some	36%
		Seldom	26%
		Never	6%
5.	To what degree during the year do your students use the library/LRC for study of environmental science?	To a Great Degree	7%
		To a Good Degree	32%
		To Some Degree	45%
		Not At All	16%
6.	To what degree during the year do your students use the greenhouse/botany lab?	To a Great Degree	5%
		To a Good Degree	5%
		To Some Degree	26%
		Not At All	64%
7*.	I am comfortable with my knowledge of computers and their use in the classroom.	Strongly Agree	13%
		Agree	36%
		Disagree	34%
		Strongly Disagree	17%
8.	To what degree do you have students use computers to reinforce basic skills in math, reading, etc.?	To a Great Degree	14%
		To a Good Degree	31%
		To Some Degree	24%
		Not At All	31%
9.	To what degree do you have students use computers to enhance instruction in your subject matter?	To a Great Degree	17%
		To a Good Degree	31%
		To Some Degree	26%
		Not At All	26%
10.	To what degree do you have students use computers to simulate activities in environmental science?	To a Great Degree	0%
		To a Good Degree	17%
		To Some Degree	24%
		Not At All	59%
11.	To what degree do you have students use computers to investigate environmental topics?	To a Great Degree	0%
		To a Good Degree	16%
		To Some Degree	23%
		Not At All	60%

* From questionnaire administered in November, 1990.

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Table 5
East High School Field Trips
Destinations 1990-91

Amish Community	Geology Museum	Squaw Creek
Black Archives	Grand Canyon	Teton Science School WY
Bowling Alley	Kansas City Board of Trade	Truman Library & Home
Chicago	Kansas City Museum	Washington, D.C.
Estes Park, CO	Liberty Memorial	Water Treatment Plant
Florida	Missouri Botanical Gardens	Watkins Mill
Folley Theater	Nowlin Middle School	Weather Service.
Fort Osage	Planetarium at SWHS	Wilson Lake
		Wolf Creek Nuclear Plant

majority of the experiences appear to be theme related. Several of the trips gave students the opportunity to travel and study outside the Kansas City area including trips to Chicago, Florida, Rocky Mountain National Park, St. Louis, Missouri, and the Teton Science School and Yellowstone Park in Wyoming. Information about the field trips was provided by the East program administrator. As will be reported in more detail in the teacher perception section of this report, teachers view the quality field trips as one of the major strengths of the first year implementation effort.

Student activities/organizations. Theme implementation was also evidenced by the participation of students in various recycling projects and in clubs/organizations. There is an active chapter of Future Farmers of America (FFA) with 35 student members. There is also a group involved with the Mid-America Consortium for Engineering and Science Achievement (MACESA), an organization that helps students, particularly minorities, to become aware of and enter professions in science and engineering. An Explorers club focuses on career exploration, with much of that focus on theme-related careers. There is also an active Science Club, which had all members participate in some kind of research project and science fair during the year and which used a school-wide can recycling project for funds. Perhaps one of the most successful and dynamic of the organizations is the staff of the school newspaper the *East Echo*. The paper has consistently shown excellence in writing, editing, high-interest material, and lay-out. It is a quality source of information about the activities of clubs/organizations and also runs informative theme centered stories about classes, staff/administration, the district, the city, and the world. The student paper may be one of the most effective

recruitment tools that East has and it provides evidence of the implementation of the environmental science theme. The principal reported that a computer club was begun during the year and would be continued and expanded for the next school year.

Teacher reported theme infusion. Responses to implementation-related items on a questionnaire administered in the spring are contained in Table 6. Nearly all of the teachers (98%) reported being able to infuse the environmental science theme into their curriculum (item 1) to at least 'some degree.' Eighty-four percent of the teachers responding reported infusion of information about careers associated with environmental science (item 2) into their subject areas to at least 'some degree' while 73% reported infusion of environmental science career information into their field trips to at least 'some degree'(item 3). These are 12%, 19%, and 38% increases respectively over figures reported to building administration on these three items during a preliminary feedback process at mid-year.

Classroom observations. Ninety-three classroom visits of 25 or 30 minutes each were made during the fall and winter of 1990-91 for a total of 2,330 minutes of observation time. Visits were unannounced and science, math, language arts, and social studies classes were randomly selected across all grade levels and school periods. Results suggest that a majority of the teachers are making an effort to infuse the theme. Hands-on learning and activities meant to improve problem-solving, critical thinking, and decision-making skills are all impor-

Table 6
East Teacher Questionnaire Responses to Infusion Items
Spring 1991

Item		Alternatives	1990-1991 (N= 45)
1.	To what degree have you been able to infuse the environmental science theme into the subject area you teach?	To a Great Degree	18%
		To a Good Degree	36%
		To Some Degree	44%
		Not at All	2%
2.	To what degree have you been able to infuse information about careers associated with environmental science into your subject?	To a Great Degree	7%
		To a Good Degree	24%
		To Some Degree	53%
		Not at All	16%
3.	To what degree have you been able to infuse information about careers associated with environmental science into the field trips you have been involved in?	To a Great Degree	12%
		To a Good Degree	28%
		To Some Degree	33%
		Not at All	28%

tant to the environmental science theme according to both the *East Planning Outline* (East High School Task Force, 1990) and the *Long Range Magnet Plan* (Hale & Levine, 1986). Classroom activities or processes involving these critical facets were observed during 47% of the minute units of observation and on 66% of the visits for some part of the total observation time. They did not have to be theme-centered to be counted, however, excepting math classes, a large majority of them were observed during activities that were theme-related. Infusion of the theme was observed on 75% of the visits with theme-centered activity taking approximately 73% of the total time in minutes. The reader is cautioned to be aware that there is no definitive "correct" or "optimal" amount of time for either incorporation of critical thinking skill related activities or infusion of a high-interest theme. The problem in this specific case is compounded by the ambiguity involved in defining and distinguishing between what minute-by-minute activities constitute teaching of problem solving, critical thinking, or decision making and where to draw the line between infusion/inclusion of "science" or "social studies" topics in general from those of environmental science, a sub-area encompassing parts of both of those disciplines. As mentioned previously in the report, a broad interpretation of environmental science was used with all theme-related activities recorded during classroom observation. As can be seen in Table 7, there was a marked difference across various subjects for both incorporation of the hands-on/critical thinking process and theme infusion. Some form of hands-on/critical thinking activity was seen on a percentage of the visits to science, math, language arts, and social studies classes (61%, 75%, 67%, and 70% respectively). Theme

Table 7

East Classroom Data Reporting Observed Infusion of Theme and Critical Thinking, Problem Solving, and Decision Making Skills

1990-91

	Science	Math	Language Arts	Social Studies
1. Total Minutes Observed	1350	505	225	250
2. % of Visits Observed Infusion	100%	0%	78%	90%
3. % of Visits Observed Critical Thinking, Problem Solving, or Decision making skills	61%	75%	67%	70%
4. % of Total Minutes Observed Infusion	99%	0%	69%	75%
5. % of Total Minutes Observed Critical Thinking, Problem Solving, or Decision Making skills	42%	57%	45%	64%

infusion during some part of the visit was observed in 100% of the science classes, 0% of the math classes, 78% of the language arts classes, and 90% of the social studies classes. The apparent lack of infusion in math classes, with zero minutes recorded in 20 visits totalling 505 minutes, may have several causes. It may be that infusion was done entirely in ways not picked up by the observers, such as being built into word problems of homework assignments. It seems unlikely that either 100% of the math classes have no infusion of the theme and or that there are large amounts of infusion in the area of math which by chance alone were not picked up at all by observations. The math rooms did have some visible evidence of the theme and on the teacher questionnaire a majority of math teachers self-reported that they were able to infuse the theme into their subject area with 20% reporting they do so to a "good degree", 60% reporting they infuse at least to "some degree", and only 20% reporting they infuse "not at all". With the broad interpretation of what constitutes theme-related topics, this lack of observation evidence suggests that at best there is little infusion of theme in math classes when compared to other subjects. Computers were observed being used in classes not specifically designed to teach computer literacy on 12 of the 93 visits (13%) for a total 291 of 2330 minutes (12%).

Community involvement and support. East has developed many community ties that have benefitted the program through provision of expertise, materials, inservice, and use of or access to facilities. The school participates in the Mid-American Consortium for Engineering and Science Achievement (MACESA) a partnership of schools, universities, and industries whose purpose is to provide educational opportunities for minority students. Graduate participants in MACESA are given priority consideration for engineering scholarships in participating universities. East also has developed a partnership with Burns and McDonnel Engineering and a local Kiwanis Club. The program administrator has reported that efforts are being made to increase community involvement and by the end of this first year of implementation, many contacts have already been made or planned to set up internships, mentoring situations, site visitations, and speaker and resource opportunities.

Achievement

Tests of Achievement and Proficiency (TAP). East TAP scores for 1990 and 1991 are displayed broken down by grade level and minority/non-minority status in Table 8, with district-wide scores presented for reference. Percentile ranks were derived by conversion of mean grade equivalent scores. Examination of the table reveals that East students scored

Table 8

East Tests of Achievement and Proficiency (TAP)

Percentile Ranks for Spring 1990 and 1991

Grade / Ethnic	Reading			Math			Science			Social Studies		
	1990	1991	District 1991	1990	1991	District 1991	1990	1991	District 1991	1990	1991	District 1991
Ninth												
Minority	21	24	37	22	30	32	23	31	33	22	30	33
Non-Minority	14	37	59	17	43	51	16	40	63	17	46	57
Total	20	25	41	21	32	36	21	33	40	22	33	37
Tenth												
Minority	23	31	37	21	34	36	18	36	40	24	31	40
Non-Minority	30	24	57	35	37	52	29	33	62	38	40	65
Total	26	30	43	26	35	40	21	35	46	26	32	47
Eleventh												
Minority	26	23	37	28	24	37	22	22	38	27	24	40
Non-Minority	35	39	58	32	44	56	25	46	65	28	45	62
Total	28	27	40	30	30	40	23	27	43	27	28	45
Twelfth												
Minority	29	24	36	27	27	36	28	22	38	27	24	36
Non-Minority	41	38	56	38	33	49	39	40	58	42	36	51
Total	32	28	39	29	28	39	31	25	41	30	27	38

Note: Percentile ranks are converted from mean grade equivalent scores.

below the national norm (the 50th percentile) at all grade levels in reading, math, social studies, and science. Scores rose by at least four percentile points across all subjects in ninth and tenth grades and in science at the eleventh grade level. Scores dropped from one to six percentile points across subjects in twelfth grade and in eleventh grade reading. The greatest gains across grade levels were made in math and science with average raises of five and six percentile points respectively. Across subjects, ninth and tenth graders made the greatest gains averaging increases of ten and eight percentile points respectively. Looking at gain/loss patterns from 1990-91, minority students tended to make greater gains, or make lesser declines, across subjects in grade ten and in math and social studies at grade twelve. This is reversed at grades nine and eleven, with non-minority students making greater average gains across subjects.

MMAT. Table 9 presents the MMAT scores for East, the Kansas City, Missouri School District (KCMSD), and the state of Missouri for 1990 and 1991. According to the *MMAT Guide to Score Interpretation and Use* (1990), meaningful strengths or weaknesses between

Table 9
Missouri Mastery and Achievement Test Scores (MMAT)
for East, the State, and the District in Spring 1991

Year	English/LA			Math			Science			Social Studies		
	East	State	District	East	State	District	East	State	District	East	State	District
1990	258	335	288	243	327	270	249	330	271	242	316	271
1991	255	313	273	255	326	278	281	327	282	263	302	268
Change	-3	-22	-15	+ 12	-1	+ 8	+ 32	-3	+ 11	+ 21	-14	-3

groups of students can be determined using the average student error of measurement of 25. Using this criterion, East scores are comparable to those of the district across all subject areas at the tenth grade, scoring within 25 points of the district average. Compared to the state East is weak across all subject areas. Since 1990, the year preceding the implementation of the environmental science theme, East scores have decreased less or increased more than both the state and district scores across all subject areas with especially remarkable gains in science and social studies. The program administrator reported that MMAT preparation was encouraged to be the focus one day a week in tenth grade classes for the weeks preceding the test administration. While encouraging, it is impossible at this time to determine if this positive change in scores is a program effect, an effect of student or teacher population changes, or if it will continue beyond the first year.

DRP. The Degrees of Reading Power Test (DRP) was developed to measure reading comprehension and was designed to be used primarily as a diagnostic test to match appropriate instructional materials with the student's reading level. The test results may be reported at three levels: independent, instructional, and frustration. Table 10 presents a breakdown of instructional DRP score means for East and district ninth graders and the national percentiles for those means. Scores were obtained from the district Testing Office.

Perceptions

Teachers. Responses of 45 teachers to perception items on a questionnaire administered in the spring are summarized in Table 11. Ninety-eight percent of the teachers responded that they were familiar with the goals and objectives of the East planning outline (item 8). Asked whether they agreed that key building personnel had provided the support necessary for them to successfully implement the theme, 94% agreed that the principal had (47% agreed

Table 10

Comparison of Ninth Grade East High School and Kansas City, Missouri School District Degrees of Reading Power (DRP) Scores for 1991

Mean DRP Score		National Percentile Rank	
East	District	East	District
60	63	29	38

Note: Mean scores reported are at the instructional level.

and 47% strongly agreed--item 4), 83% agreed that the curriculum coordinator had (item 6), 79% agreed that the program administrator had (item 5), and 73% agreed that the science resource teachers had (item 7). Eighty-nine percent stated that they engaged in more environmentally sound activities in their personal lives as a result of increased knowledge about environmental issues gained through their experiences at an environmental science magnet (item 3). Eighty-four percent stated that they were personally committed to the theme to a good or great degree (item 12). Seventy-seven percent reported they were satisfied or very satisfied with the quality of their students' field trips (item 2). On the negative side, 75% of the teachers believed that discipline problems hindered their attempts to implement the theme at least to some degree (item 10) and 62% believed that communication/coordination problems hindered their attempts to implement the theme (item 11). Teachers were for the most part positive at the completion of this first year of implementation with 58% rating East's first year of implementation as good or excellent, 36% rating it average, and 7% rating it fair (item 13).

Teachers were also asked to list the strengths and weaknesses of the program and to make suggestions to improve the program in planning for 1991-92. Strengths listed by at least ten percent of 40 responding teachers included the following: 1) field trips (50%); 2) commitment and cooperation of faculty/staff/administration (35%); 3) good facilities and materials (20%); and 4) the Resource teachers (10%). Hindrances to implementation mentioned by at least ten percent of the 38 responding teachers included the following: 1) problems resulting from the construction (32%); 2) discipline (21%); 3) poor student attendance (18%); 4) communication/repetition of information problems (16%); 5) personality/leadership of the program administrator (11%); and 6) problems with resource teachers (11%). At least ten percent of 35 responding teachers gave the following suggestions for improvement: 1) improve coordination/cooperation/communication (31%); 2) specific recommendations or requests for in-

Table 11

East Teacher Questionnaire Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 45)
1.	In general, have your students participated in enough theme related field experiences (field trips, outdoor activities, etc.)?	Yes No	82% 18%
2.	How satisfied have you been with the quality of your students' field trips?	Very satisfied Satisfied Dissatisfied Very Dissatisfied	10% 67% 13% 10%
3.	Do you engage in more environmentally sound activities in your own personal life as a result of increased knowledge about environmental issues gained through your experience at an environmental science magnet?	Yes No	89% 11%
4.	The principal has provided the support I need to successfully implement the magnet theme.	Strongly Agree Agree Disagree Strongly Disagree	47% 47% 7% 0%
5.	The program administrator has provided the support I need to successfully implement the magnet theme.	Strongly Agree Agree Disagree Strongly Disagree	26% 53% 12% 9%
6.	The curriculum coordinator has provided the support I need to successfully implement the magnet theme.	Strongly Agree Agree Disagree Strongly Disagree	26% 57% 10% 7%
7.	The science resource teachers have provided the support I need to successfully implement the magnet theme.	Strongly Agree Agree Disagree Strongly Disagree	21% 52% 10% 17%
8.	I am familiar with the goals and objectives in the East planning outline.	Strongly Agree Agree Disagree Strongly Disagree	40% 58% 2% 0%
9.	I believe our school is implementing the magnet theme according to the goals and objectives identified in the East planning outline.	Strongly Agree Agree Disagree Strongly Disagree	40% 47% 12% 2%
10.	To what degree do discipline problems hinder your attempts to implement the environmental science theme?	To a Great Degree To a Good Degree To Some Degree Not At All	13% 22% 40% 24%
11.	To what degree do communication/ coordination probiems hinder your attempts to implement the environmental science theme?	To a Great Degree To a Good Degree To Some Degree Not At All	7% 4% 51% 38%

Table 11 (Cont.)

East Teacher Questionnaire Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 45)
12.	To what degree are you personally committed to the environmental science theme?	To a Great Degree	44%
		To a Good Degree	40%
		To Some Degree	16%
		Not At All	0%
13.	Overall, what rating would you give to East this first year of theme implementation?	Excellent	11%
		Good	47%
		Average	36%
		Fair	7%
		Poor	0%

service and infusion (26%--note: those suggestions are provided to the building administration); 3) Improve discipline (14%); and 4) reassess Educable Mentally Handicapped (EMH) teacher schedule, particularly allow more time for them to work with their students on regular classwork and theme-related work (14%).

Administrative and instructional support staff. The building administration and instructional support staff were also asked to give their perceptions of the strengths and weaknesses of theme implementation at East during 1990-91 and to make suggestions for improvement.

Mentioned by at least 10% of the 15 respondents as strengths were the following: 1) the faculty/staff (67%); 2) the principal/program administrator (33%); 3) the field trips (27%); and 4) the resource teachers (20%). Weaknesses or hindrances to implementation cited by more than 10% of the 15 respondents included the following: 1) building construction (47%); 2) attitudes of 'some' teachers (33%); and 3) problems with the program administrator (13%). Asked for suggestions to improve program implementation, 38% of the 13 respondents recommended continued focus on and development of theme centered inservice to help improve infusion. The variety of individual recommendations will be typed without any writer's identifying features and given to the principal and program administrator.

Parents. Results of a survey of approximately 25% of East parents (152) randomly selected to be interviewed by phone during the spring of 1990 are shown in Table 12. The actual number of respondents for each item varies between 133 and 152 because some parents did not respond or had no opinion on some items. The first 10 items are associated with the

Table 12

East Parent Survey Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 152)
1.	Do you believe your child is acting in a more environmentally responsible way since attending East?	Yes No	90% 10%
2.	Has your child made your family more environmentally aware, encouraging you to ac more environmentally responsible through recycling,etc.	Yes No	89% 11%
3.	Are you satisfied with the progress your child has made in the environmental science theme?	Yes No	99% 1%
4.	Overall, do you believe that the principal of East has been responsive to your concerns?	Yes No	99% 1%
5.	Are you satisfied with the progress your child has made in basic courses(i.e.English and math?	Yes No	100% 0%
6.	Overall, are you satisfied with your child's teachers?	Yes No	100% 0%
7.	Overall, are you satisfied with East High School?	Yes No	100% 0%
8.	Have communications from school like newsletters, notes, or phone calls been understandable and helpful?	Yes No	100% 0%
9.	Do you believe your child is safe at East?	Yes No	100% 0%
10.	Would you recommend East to other parents?	Yes No	100% 0%
11.	Have you met your child's teachers for this year?	Yes No	100% 0%
12.	Do you believe your participation as a parent is welcome at East (e.g. at SAC, as volunteer, etc.)	Yes No	100% 0%
13.	Did you attend the last parent/teacher conference?	Yes No	97% 3%
14.	Do you attend SAC meetings?	Often Occasionally Never	9% 91% 0%
15.	How many times have you been contacted by one of your child's teachers at East this school year?	> 10 4-10 1-3 none	0% 0% 75% 25%

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Table 12 (Cont.)

East Parent Survey Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 152)
16.	How often have you worked on homework assignments with your child this school year?	everyday 2-3 days/week occasionally never	33% 56% 11% 0%
17.	Do you live in the Kansas City, Missouri School District?	Yes No	100% 0%
18.	Is East your neighborhood high school--the one your child would attend if there were no magnet schools?	Yes No	49% 51%
19.	When your child applied to East was the application handled in a reasonable amount of time?	Yes No	100% 0%
20.	When you applied for a magnet school were you treated in a courteous and helpful manner?	Yes No	100% 0%
21.	Do you think the way students were chosen for magnet schools was fair?	Yes No	100% 0%
22.	Does your child use district provided bus or taxi transportation?	Yes No	92% 8%
23.	Do you believe the school bus or taxi takes your child to school and back in a reasonable amount of time?	Yes No	100% 0%
24.	Do you believe the school bus or taxi provides safe transportation for your child?	Yes No	100% 0%

Note: Data are from phone surveys of East parents in Spring,of 1991. Actual number of respondents varied between 133 and 152 as some parents did not answer all questions. Questions 23 and 24 were answered only by parents who stated that their child used district transportation.

environmental science program implementation and aspects of education at the building level, the next six items are related to parent involvement with the school and their child's education, and the final eight items refer to whole district issues related to magnet implementation. Results of the survey reveal that a large majority of parents responded very positively to most questions. There were no areas which elicited a majority of negative responses. Ninety percent of parents reported they believe their child is acting in a more environmentally responsible

way since attending East (item 1). Eighty-nine percent said their child has made their family more environmentally aware and encouraged them to act more environmentally responsible (item 2). Ninety-nine percent of parents said they were satisfied with the progress their child has made in the environmental science theme and that they believe that the principal of East has been responsive to their concerns (items 3 and 4 respectively). One-hundred percent of parents responded that they were satisfied with the progress their child has made in the basic courses such as English and math (item 5), overall with the child's teachers (item 6), and with East High School overall (item 7). One-hundred percent also stated that they found the communications from school, like newsletters, notes, or phone calls, helpful and understandable (item 8), that they believe that their child is safe at East (item 9), and that they would recommend East High School to other parents (item 10). One-hundred percent of the parents said they had met their child's teachers for this year and that they believed their participation at East was welcome (items 11 and 12 respectively). Ninety-seven percent reported that they attended the last parent/teacher conference (item 13) and nine percent said they attend SAC meetings regularly, with 91% reporting they attend occasionally (item 14). Seventy-five percent of the parents reported being contacted by a teacher from one to three times during the school year (item 15). Asked how often they worked on homework assignments with their child 33% said everyday, 56% said 2-3 days a week, and 11% said occasionally (item 16). One-hundred percent of the parents reported that they live in the Kansas City, Missouri School District (item 17), but 51% reported that East is not their neighborhood school, the one their child would attend if there were no magnet program (item 18). One-hundred percent reported that their magnet application had been handled in a reasonable amount of time, that they were treated in a helpful and courteous manner during the application process, and that they think the way students were chosen for magnet schools was fair (items 19, 20, and 21 respectively). Ninety-two percent of the respondents said their child uses district provided bus or taxi transportation (item 22). Of those who use district transportation, 100% stated they believe the child is transported to and from school in a reasonable amount of time and that the transportation is safe (items 23 and 24 respectively).

Students. One hundred and thirty-eight students from randomly selected language arts classrooms across all grade levels were surveyed in spring 1991. Results of the survey are shown in Table 13. Nearly three-fourths of the students reported that they had learned a lot about the environment and taking care of it (item 1) and that they learned problem-solving

Table 13

East Student Questionnaire Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 138)
1.	In your classes this year, did you learn a lot about the environment and taking care of it?	Yes No	73% 27%
2.	Do you learn about taking care of our environment in all classes--e.g. English, math, SS, art?	Yes No	47% 53%
3.	Are you learning problem solving and decision making skills that you have been able to apply outside school life?	Yes No	70% 30%
4.	Have you kept a detailed science notebook this year?	Yes No	27% 73%
5.	This school year did you write a personal philosophy about the preservation of the earth?	Yes No	27% 74%
6.	During this school year have you studied the impact of industry on the environment?	Yes No	67% 33%
7.	During this school year have you regularly studied current environmental issues?	Yes No	72% 28%
8.	During this school year have you studied the interaction between agriculture and environmental science?	Yes No	64% 36%
9.	During this school year have you studied the global impact of environmental problems around the world?	Yes No	84% 16%
10.	Because of what you have learned in school do you try harder than in the past to save energy?	Yes No	54% 46%
11.	Because of what you have learned in school do you try to litter less than in the past?	Yes No	72% 28%
12.	Because of what you have learned in school do you try harder to save water than in the past?	Yes No	45% 56%
13.	Because of what you have learned in school do you save things to recycle--like cans or paper?	Yes No	55% 46%
14.	Have you taught your family things you learned at school about taking care of the environment?	Yes No	37% 63%

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Table 13 (Cont.)

East Student Questionnaire Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 138)
15.	Are there things to help the environment that you learned about in school that you and your family now do at home?	Yes No	55% 45%
16.	Have you had the opportunity this year to design any scientific experiments?	Yes No	30% 70%
17.	Have you had the opportunity this year to conduct any scientific experiments?	Yes No	34% 66%
18.	Have you had the opportunity this year to analyze experimental data statistically?	Yes No	30% 70%
19.	Have you had the opportunity this year to build an ecosystem of some kind?	Yes No	24% 76%
20.	Have you had the opportunity this year to study a macrosystem on at least one field trip?	Yes No	32% 68%
21.	Have you had the opportunity this year to hear outside experts invited to your classes speak on current environmental issues?	Yes No	44% 56%
22.	Have you had the opportunity this year to learn about career opportunities in environmental science?	Yes No	47% 53%
23.	Have you had the opportunity this year to participate in a mentor or internship program?	Yes No	15% 85%
24.	Have you had the opportunity to use computers this year for improvement of basic skills like math, reading, etc.?	Yes No	62% 38%
25.	Have you had the opportunity to use computers this year for simulation activities or investigation of environmental science?	Yes No	29% 71%
26.	During the school year did you participate in any school recycling projects?	Yes No	35% 65%
27.	During the school year did you participate in any science fairs or projects?	Yes No	9% 91%

Table 13 (Cont.)
East Student Questionnaire Responses to Program Perception Items
Spring 1991

Item		Response Alternatives	(N = 138)
28.	During the school year did you participate in any school landscaping projects ?	Yes No	15% 85%
29.	During the school year did you participate in any other voluntary activities to improve the environment?	Yes No	16% 84%
30.	Do you like going to your school?	Yes No	73% 27%
31.	Do you feel safe at East?	Yes No	62% 38%
32.	Do you believe students are well-behaved in classes?	Yes No	26% 74%
33.	Do you believe student behavior problems at East have interfered with theme implementation this year?	Yes No	48% 52%
34.	Do you think your friends in other schools would like to go to your school?	Yes No	38% 62%
35.	Has the environmental science theme contributed to academic achievement?	Yes No	47% 53%
36.	Do you think you want a career related to environmental science?	Yes No	19% 81%
37.	FRESHMAN: Did you plan with counselors a four year comprehensive program focusing on vocation, college, or the military?	Yes No	35% 65%

and decision making skills that have been applicable outside school life (item 3). Approximately one-half the students reported that they had learned about taking care of the environment in classes across the curriculum (item 2) and 27% stated that they had kept a detailed science notebook or written a personal philosophy about the preservation of the earth (items 4 and 5 respectively), both activities called for in the East plan's objectives. Items six through nine reveal that between 64% and 84% of the students report studying a variety of aspects also defined in the program's objectives including the impact of industry on the environment (item

6, 67%), current environmental issues on a regular basis (item 7, 72%), the interaction between agriculture and environmental science (item 8, 64%), and the global impact of environmental problems around the world (item 9; 84%). Asked if their own behaviors had become more environmentally responsible in several areas, students responded that they tried harder than in the past to save energy (item 10; 54%), tried to litter less than in the past (item 11; 72%), tried harder than in the past to save water (item 12; 45%), and saved things to recycle (item 13; 55%). Thirty-seven percent of students responding stated that they had taught their family things they learned at school about taking care of the environment (item 14) and 55% reported that there are things that they learned about helping the environment that they and their family now do at home (item 15). Items 16 through 25 report student responses when asked about educational opportunities they may have had this year that are spelled out in the East planning outline. Sixty-two percent of students said they had the opportunity to use computers to improve basic skills (item 24). Opportunities to learn about careers in environmental science were reported by 47% of students (item 22) and 44% said that outside experts were invited to their classes to speak about current environmental issues (item 21). Between 29% and 34% of the students reported that they had the opportunity to design scientific experiments (item 16), conduct scientific experiments (item 17), analyze experimental data statistically (item 18), study a macrosystem on at least one field trip (item 20), and use computers for simulation activities or investigation of environmental science (item 25). When asked whether they had participated in various theme related projects or activities 35% stated that they had participated in a school recycling project, 16% in some voluntary activity to improve the environment, 15% in a school landscaping project, and 9% in a science fair or project (items 26, 29, 28, and 27 respectively). Nearly three-fourths of the students do not believe that students are well-behaved in classes (item 32; 74%) and 48% stated that they believe that student behavior problems at East have interfered with theme implementation this year (item 33). Sixty-two percent of the students said they feel safe at East (item 31) and 73% said they like going to their school (item 30). However, only 38% said that they thought their friends in other schools would like to go to their school (item 34). A little less than one-half the students think the theme has contributed to academic achievement. Approximately one in five students said they thought they might want a career related to environmental science (item 36; 19%). Thirty-five percent of ninth graders said they had planned with their

counselors a four year comprehensive program focusing on vocation, college, or the military, an activity called for in the East plan's objectives.

Conclusions

In its first year of operation, the East High School Environmental Science program recorded some important accomplishments and experienced some significant difficulties. The infusion of the magnet theme was evidenced in a variety of ways, with theme-centered displays, speakers and activities, on-going recycling projects, theme related field trips, and infusion activities across all grade levels in a majority of classrooms observed. The one area that seems to be an exception is math with no infusion observed directly in classroom visitations. Difficulties can be expected in any new program and East has experienced several notable problems. The massive construction effort throughout the school year created problems for nearly everyone. The noise and dirt along with the distracting activity and motion made it difficult to get and maintain student attention and concentration. Teachers were forced to relocate regularly as the sites of construction and asbestos removal moved. This made the use of delicate plants, animals, pieces of equipment, displays, models, etc. more difficult. It is a tribute to the faculty/staff and administration that, in spite of the inconvenient circumstances, the implementation of the environmental science program had a very positive and fruitful beginning overall, with the majority of teachers supporting the theme. Notable positive aspects include moderate raises in TAP and MMAT scores, some excellent field trips that appeared to be well organized and educationally sound, the establishment of a strong core of student organizations to provide theme-centered, multi-cultural experiences, and a strong administration and an innovative support team which have shown a real commitment to theme implementation (94% of the teachers stated that the principal had given them the support they needed to successfully implement the program--a true credit to the principal who was told in mid-year that he would not be rehired in that capacity for 1991-92.)

East administration has shown an exceptional willingness to respond to both internal and external feedback about the program in its first year of implementation. Within days of a preliminary data feedback session at mid-year, a booklet with suggestions for teachers on infusion of information about theme-related careers was prepared and distributed. In addition computer inservice manuals were developed and a series of computer inservice sessions were offered for teachers in the late spring. Based on their own experiences, the procedures for

field trips was refined throughout the year with a field trip "survival manual" developed in late fall. The program administrator publishes a monthly report on the implementation process and the administrative and instructional support team try to continually monitor their own progress and make changes as deemed necessary. The dissemination of information is enhanced greatly by the excellent quality of productions by the technical writing teacher and the students under her direction. Based on information summarized in this report, the following recommendations can be made:

1. It is important that the East faculty/staff continue to have theme-centered inservice opportunities. Included should be hands-on infusion activities across the curriculum and information about theme-related careers and how to infuse that information, as called for in the East plan, into both classes and field trips. It is particularly important that all the providers of inservice (including the district, the building administration, and the two theme program administrators) work closely together to coordinate effective staff development fitted to the faculty/staff needs.

2. Additional opportunities for computer inservice are necessary for teachers to make them both able and comfortable in their use to meet the objectives in the East plan calling for students to use computers in improving basic skill, enhancing instruction, and investigating environmental science theme topics. It is also important that East continue to build their software library , making it readily available to teachers and keeping them properly informed on the availability and usage of programs.

3. East administration and faculty/staff should continue to provide educationally sound, theme-centered field experiences, activities, and organizations. Special care should be taken to encourage and ensure wide student participation so that all students can reap the benefits of the trips, organizations, projects, etc. This will have to be a pro-active process as passively presenting opportunities for joining and volunteering will not adequately attract many of the students who could most benefit and will leave a small group of students to reap the benefits of the program.

4. East administration should continue to keep the East plan's goals and objectives in front of the faculty/staff helping each person to see in a concrete way things that they could and should be doing to help meet those objectives. Clear definitions of objectives and who is responsible for each should be defined where possible so that lines of accountability, and thus success/credit, are clear.

5. Central office administration should work diligently to fill the administration and administrative and instructional support staff positions that are open in a timely fashion so that the second year of implementation of the environmental science theme, and the first year of the agribusiness theme, will not suffer from lack of planning time and coordination.

6. East administration and faculty/staff must work together to smoothly add their second theme of agribusiness and provide a physical and educational environment centered around the themes and provide positive proof of the dynamic

implementation of those themes in the building. This should include special attention to the important entryways into the building which provide the public and school patrons with their first impressions.

7. The program administrator and the administrative and instructional support staff should continue to build a leadership "team" that will work with faculty/staff to monitor implementation progress and proactively seek to determine strengths and problems and refine the program as necessary.

8. The administration and instructional support staff should study the results of the classroom observation data and determine what, in their best judgement, should be considered for each subject area to be appropriate levels of infusion, computer use, and instruction of problem solving/critical thinking/decision making skills. They should, in particular, determine in what way they can support the faculty in each subject area to best implement the theme and meet the goals and objectives of the school's planning outline.

9. The administration and instructional support staff should use appropriate resources, such as the district testing office, to most optimally make use of the standardized test results to assess strengths and weaknesses in alignment of the curriculum for planning purposes.

References

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